FIG.1

R 1, 1	G 2, 1	R 3, 1	G 4, 1	R 5, 1	G 6, 1	R 7, 1	G 8, 1	R 9, 1	G 10, 1	R 11, 1	G 12, 1
G 1, 2	B 2, 2	G 3, 2	B 4, 2	G 5, 2	B 6, 2	G 7, 2	B 8, 2	G 9, 2	B 10, 2	G 11, 2	B 12, 2
R 1, 3	G 2, 3	R 3, 3	G 4, 3	R 5, 3	G 6, 3	R 7, 3	G 8, 3	R 9, 3	G 10, 3	R 11, 3	G 12, 3
G 1, 4	B 2, 4	G 3, 4	B 4, 4	G 5, 4	B 6, 4	G 7, 4	B 8, 4	G 9, 4	B 10, 4	G 11, 4	B 12, 4
R 1, 5	G 2, 5	R 3, 5	G 4, 5	R 5, 5	G 6, 5	R 7, 5	G 8, 5	R 9, 5	G 10, 5	R 11, 5	G 12, 5
G 1, 6	B 2, 6	G 3, 6	B 4, 6	G 5, 6	B 6, 6	G 7, 6	B 8, 6	G 9, 6	B 10, 6	G 11, 6	B 12, 6
R 1, 7	G 2, 7	R 3, 7	G 4, 7	R 5, 7	G 6, 7	R 7, 7	G 8, 7	R 9, 7	G 10, 7	R 11, 7	G 12, 7
G 1, 8	B 2, 8	G 3, 8	B 4, 8	G 5, 8	B 6, 8	G 7, 8	B 8, 8	G 9, 8	B 10, 8	G 11, 8	B 12, 8
R 1, 9	G 2, 9	R 3, 9	G 4, 9	R 5, 9	G 6, 9	R 7, 9	G 8, 9	R 9, 9	G 10, 9	R 11, 9	G 12, 9
G 1, 10	B 2, 10	G 3, 10	B 4, 10	G 5, 10	B 6, 10	G 7, 10	B 8, 10	G 9, 10	B 10, 10	G 11, 10	B 12, 10
R 1, 11	G 2, 11	R 3, 11	G 4, 11	R 5, 11	G 6, 11	R 7, 11	G 8, 11	R 9, 11	G 10, 11	R 11, 11	G 12, 11
G 1, 12	B 2, 12	G 3, 12	B 4, 12	G 5, 12	B 6, 12	G 7, 12	B 8, 12	G 9, 12	B 10, 12	G 11, 12	B 12, 12

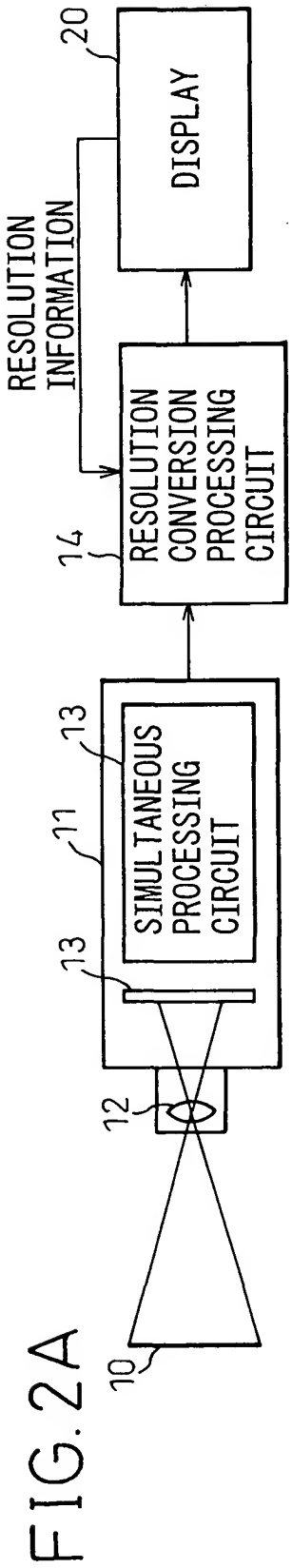


FIG. 2A

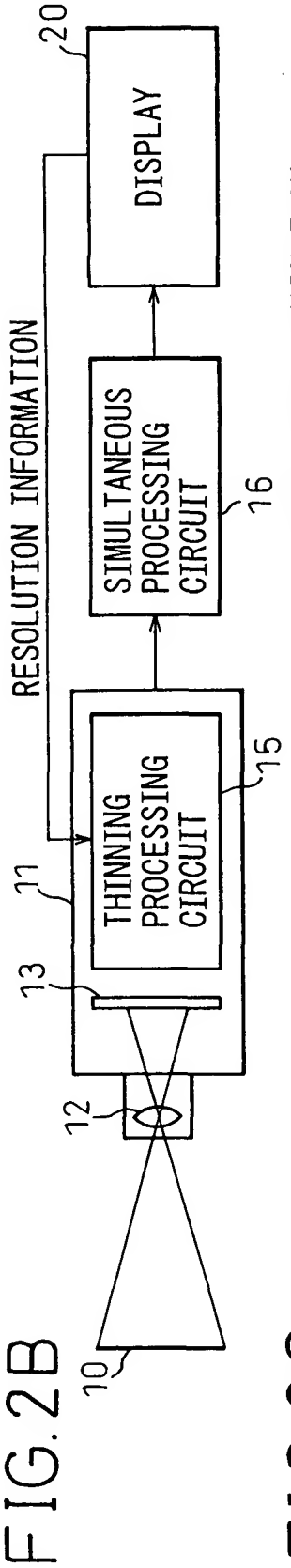


FIG. 2B

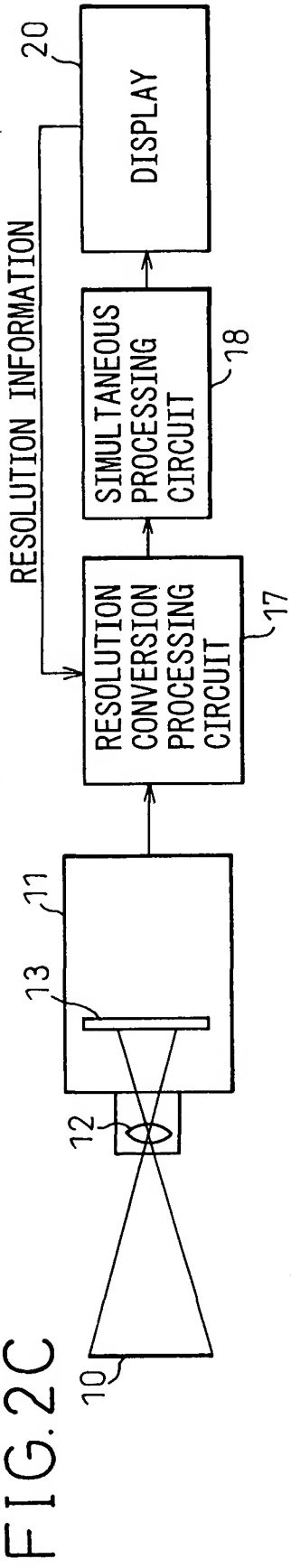


FIG. 2C

FIG.3A

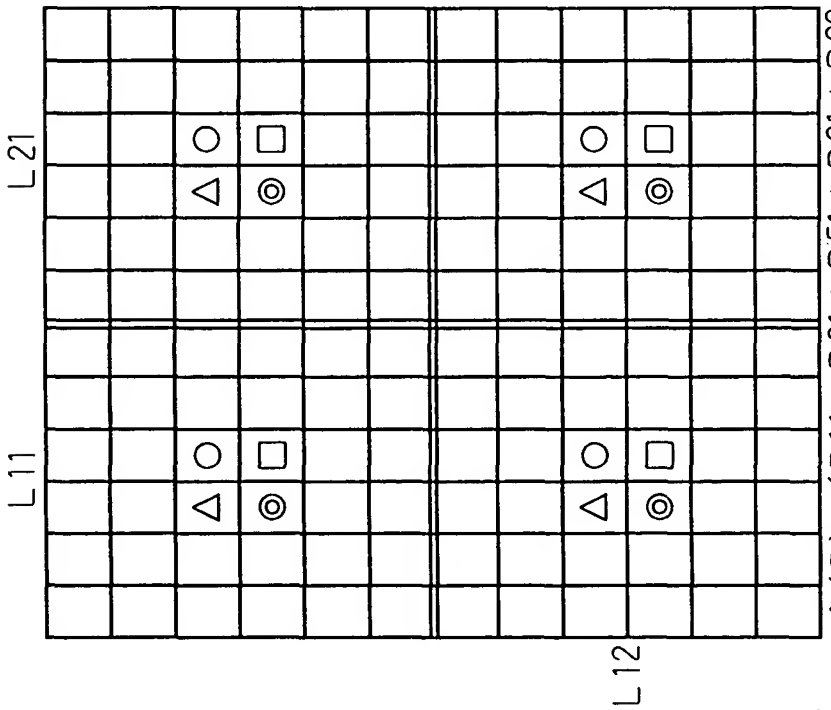

L11
L21
L12
L22
△(R) = (R11 + R31 + R51 + R31 + R33 + R53 + R15 + R35 + R55) / 9
○(G) = (G21 + G41 + G61 + G23 + G43 + G63 + G25 + G45 + G65) / 9
◎(G) = (G12 + G32 + G52 + G14 + G34 + G54 + G16 + G36 + G56) / 9
□(B) = (B22 + B42 + B62 + B24 + B44 + B64 + B26 + B46 + B66) / 9

FIG.3B

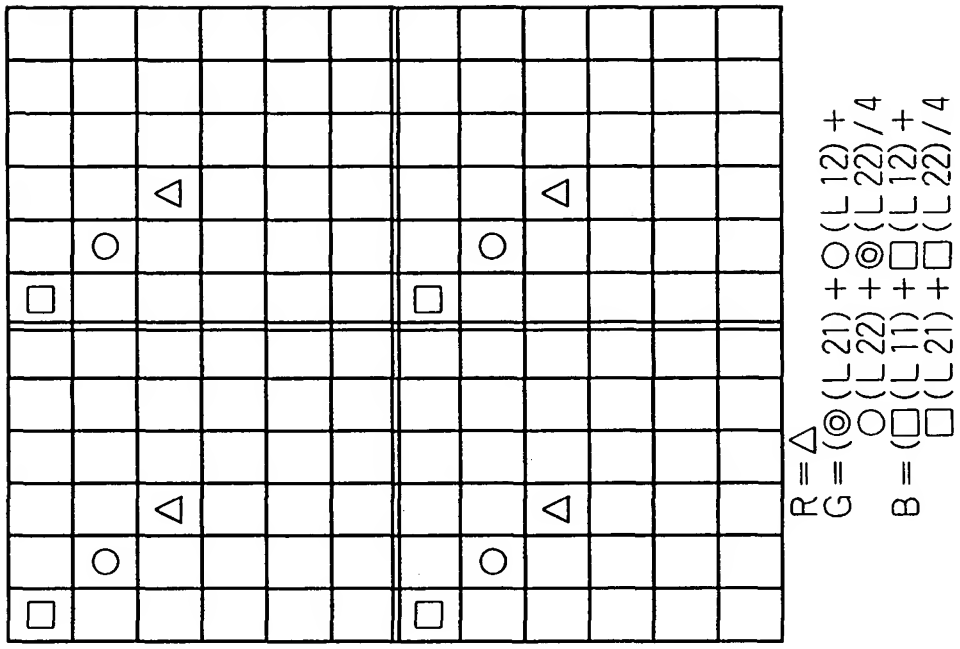
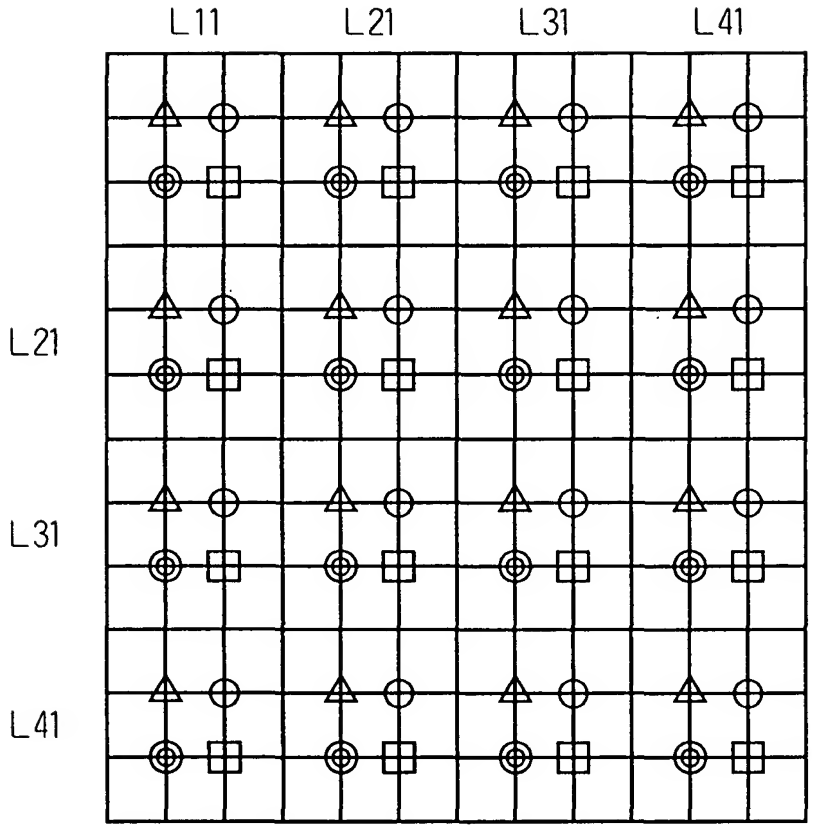
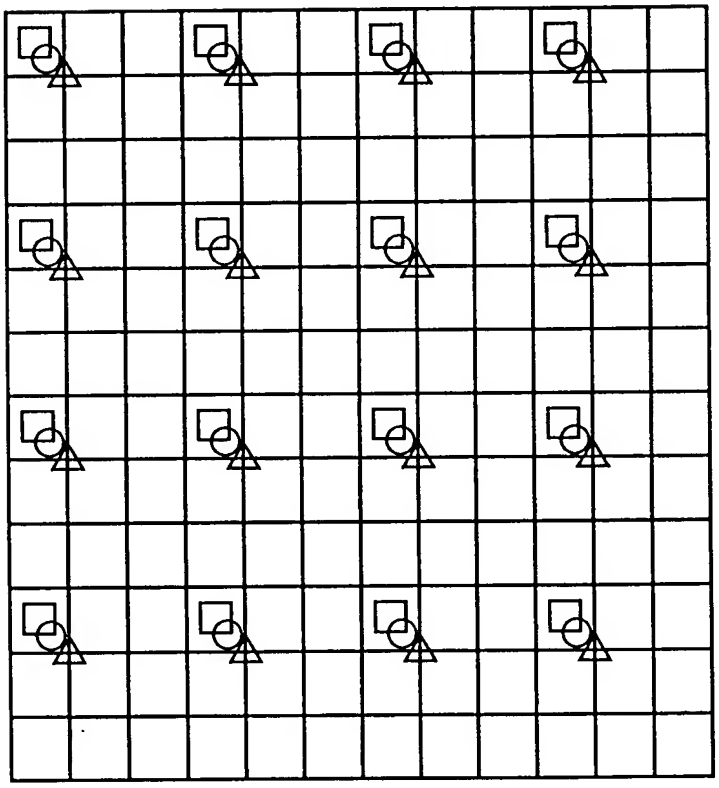

R = △
G = (◎(L21) + ○(L12) + ○(L22) + ◎(L22)) / 4
B = (□(L11) + □(L12) + □(L21) + □(L22)) / 4

FIG. 4



△1 = (49R11 + 7R31 + 7R13 + R33)/64
○1 = (49G21 + 7G41 + 7G23 + G43)/64
◎1 = (49G12 + 7G32 + 7G14 + G34)/64
□1 = (49B22 + 7B42 + 7B24 + B44)/64

FIG.5



R = △
G = (◎(L21) + ○(L12) + ○(L22) + ◎(L22))/4
B = (□(L11) + □(L21) + □(L12) + □(L22))/4

FIG.6

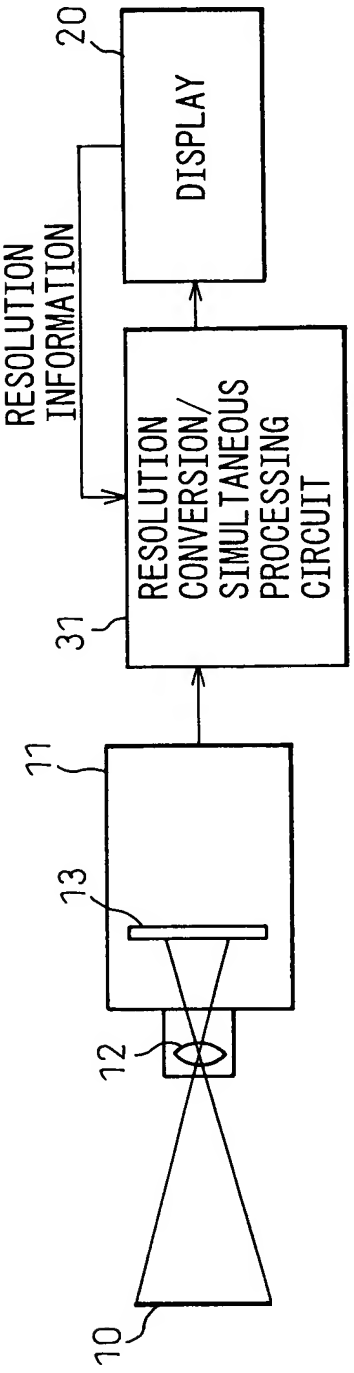

20
DISPLAY
RESOLUTION INFORMATION
RESOLUTION CONVERSION/ SIMULTANEOUS PROCESSING CIRCUIT
31
11
13
12
10

FIG.7A

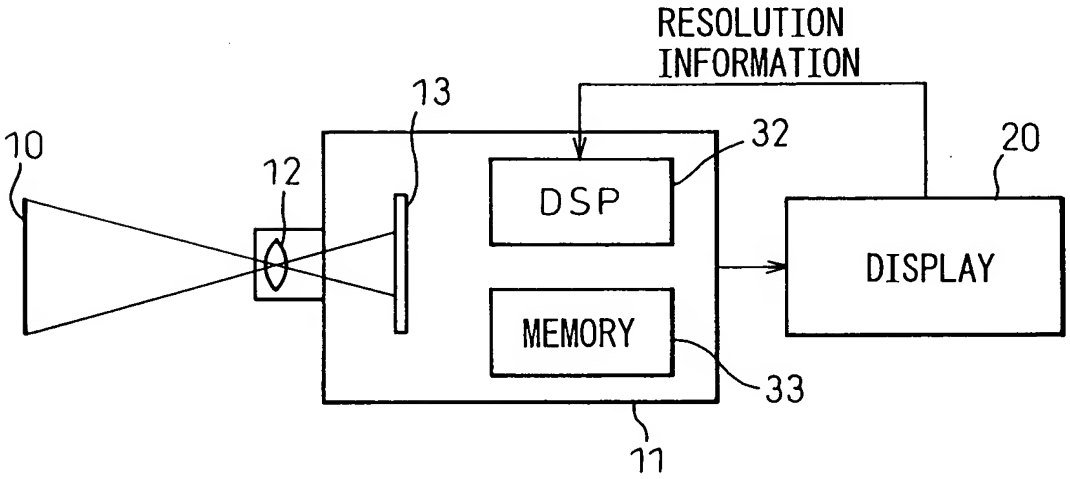

RESOLUTION
INFORMATION
13
10
12
32
20
DSP
DISPLAY
MEMORY
33
11

FIG.7B

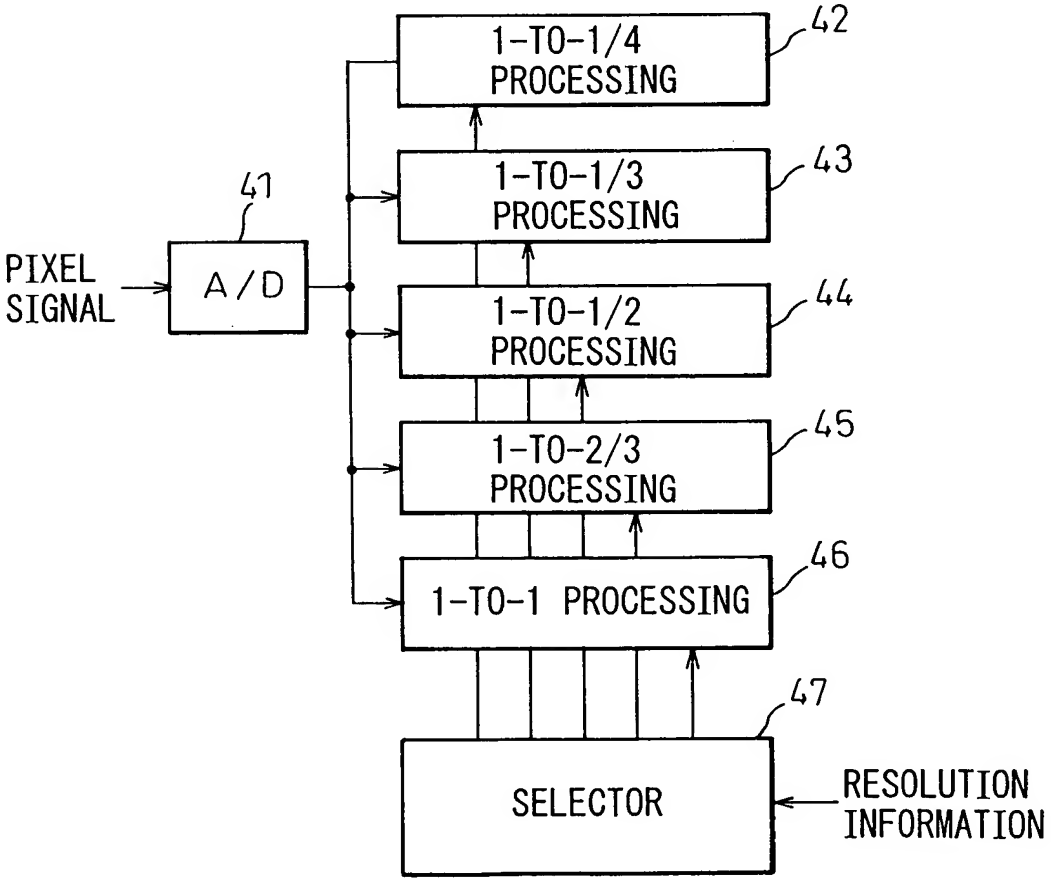

1-TO-1/4
PROCESSING
42
1-TO-1/3
PROCESSING
43
41
PIXEL
SIGNAL
A/D
1-TO-1/2
PROCESSING
44
1-TO-2/3
PROCESSING
45
1-TO-1 PROCESSING
46
47
SELECTOR
RESOLUTION
INFORMATION

FIG.8

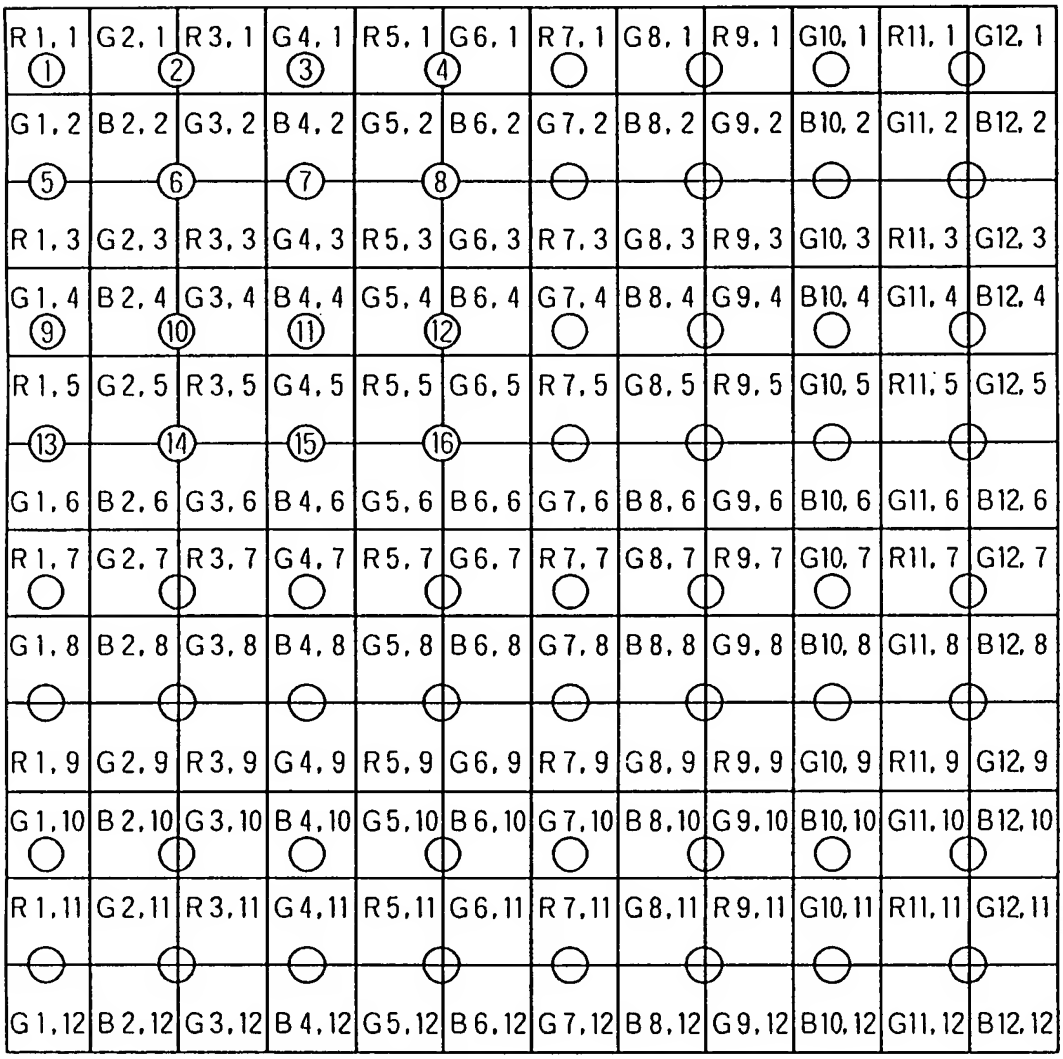
R1,1	G2,1	R3,1	G4,1	R5,1	G6,1	R7,1	G8,1	R9,1	G10,1	R11,1	G12,1
G1,2	B2,2 ①	G3,2	B4,2	G5,2 ②	B6,2	G7,2	B8,2 ○	G9,2	B10,2	G11,2 ○	B12,2
R1,3	G2,3	R3,3	G4,3	R5,3	G6,3	R7,3	G8,3	R9,3	G10,3	R11,3	G12,3
G1,4	B2,4	G3,4	B4,4	G5,4	B6,4	G7,4	B8,4	G9,4	B10,4	G11,4	B12,4
R1,5	G2,5 ③	R3,5	G4,5	R5,5 ④	G6,5	R7,5	G8,5 ○	R9,5	G10,5	R11,5 ○	G12,5
G1,6	B2,6	G3,6	B4,6	G5,6	B6,6	G7,6	B8,6	G9,6	B10,6	G11,6	B12,6
R1,7	G2,7	R3,7	G4,7	R5,7	G6,7	R7,7	G8,7	R9,7	G10,7	R11,7	G12,7
G1,8	B2,8 ○	G3,8	B4,8	G5,8 ○	B6,8	G7,8	B8,8 ○	G9,8	B10,8	G11,8 ○	B12,8
R1,9	G2,9	R3,9	G4,9	R5,9	G6,9	R7,9	G8,9	R9,9	G10,9	R11,9	G12,9
G1,10	B2,10	G3,10	B4,10	G5,10	B6,10	G7,10	B8,10	G9,10	B10,10	G11,10	B12,10
R1,11	G2,11 ○	R3,11	G4,11	R5,11 ○	G6,11	R7,11	G8,11 ○	R9,11	G10,11	R11,11 ○	G12,11
G1,12	B2,12	G3,12	B4,12	G5,12	B6,12	G7,12	B8,12	G9,12	B10,12	G11,12	B12,12

$$R1 = (1 * R11 + 1 * R31 + 1 * R13 + 1 * R33)/4$$
$$R2 = (1 * R51 + 1 * R53)/2$$
$$R3 = (1 * R15 + 1 * R35)/2$$
$$R4 = (1 * R55)/1$$

$$G1 = (1 * G21 + 1 * G12 + 1 * G32 + 1 * G23)/4$$
$$G2 = (1 * G11 + 1 * G61 + 4 * G52 + 1 * G43 + 1 * G63)$$
$$G3 = (1 * G14 + 1 * G34 + 4 * G25 + 1 * G16 + 1 * G36)$$
$$G4 = (1 * G54 + 1 * G45 + 1 * G65 + 1 * G56)/4$$

$$B1 = (1 * B22)/1$$
$$B2 = (1 * B42 + 1 * B62)/2$$
$$B3 = (1 * B24 + 1 * B26)/2$$
$$B4 = (1 * B44 + 1 * B64 + 1 * B46 + 1 * B66)/4$$

FIG.9A



$$R1 = (1 * R11)/1$$
$$R2 = (1 * R11 + 3 * R31)/4$$
$$R3 = (1 * R31 + 1 * R51)/2$$
$$R4 = (3 * R51 + 1 * R71)/4$$
$$R5 = (1 * R11 + 3 * R13)/4$$
$$R6 = (1 * R11 + 3 * R31 + 3 * R13 + 9 * R33)/16$$
$$R7 = (1 * R31 + 3 * R33 + 1 * R51 + 3 * R53)/8$$
$$R8 = (3 * R51 + 9 * R53 + 1 * R71 + 3 * R73)/16$$
$$R9 = (1 * R13 + 1 * R15)/2$$
$$R10 = (1 * R13 + 3 * R33 + 1 * R15 + 3 * R35)/8$$
$$R11 = (1 * R33 + 1 * R53 + 1 * R35 + 1 * R55)/4$$
$$R12 = (3 * R53 + 3 * R55 + 1 * R73 + 1 * R75)/8$$
$$R13 = (3 * R15 + 1 * R17)/4$$
$$R14 = (3 * R15 + 9 * R35 + 1 * R17 + 3 * R37)/16$$
$$R15 = (3 * R35 + 3 * R55 + 1 * R37 + 1 * R57)/8$$
$$R16 = (9 * R55 + 3 * R75 + 3 * R57 + 1 * R77)/16$$

FIG. 9B

$$G1 = (1 * G10 + 1 * G01 + 1 * G21 + 1 * G12)/4$$
$$G2 = (3 * G21 + 1 * G41)/4$$
$$G3 = (1 * G41)/1$$
$$G4 = (1 * G41 + 3 * G61)/4$$
$$G5 = (3 * G12 + 1 * G14)/4$$
$$G6 = (3 * G32 + 3 * G23 + 1 * G43 + 1 * G34)/8$$
$$G7 = (3 * G43 + 1 * G41)/4$$
$$G8 = (3 * G52 + 1 * G43 + 3 * G63 + 1 * G54)/8$$
$$G9 = (1 * G14)/1$$
$$G10 = (1 * G14 + 3 * G34)/4$$
$$G11 = (1 * G43 + 1 * G34 + 1 * G54 + 1 * G45)/4$$
$$G12 = (3 * G54 + 1 * G74)/4$$
$$G13 = (1 * G14 + 3 * G16)/4$$
$$G14 = (1 * G34 + 3 * G25 + 1 * G45 + 3 * G36)/8$$
$$G15 = (3 * G45 + 1 * G17)/4$$
$$G16 = (3 * G65 + 3 * G56 + 1 * G67 + 1 * G76)/16$$

$$B1 = (1 * B00 + 1 * B20 + 1 * B02 + 1 * B22)/4$$
$$B2 = (3 * B20 + 1 * B40 + 3 * B22 + 1 * B42)/8$$
$$B3 = (1 * B40 + 1 * B42)/2$$
$$B4 = (1 * B40 + 3 * B60 + 1 * B42 + 3 * B62)/8$$
$$B5 = (3 * B02 + 3 * B22 + 1 * B04 + 1 * B24)/8$$
$$B6 = (9 * B22 + 3 * B42 + 3 * B24 + 1 * B44)/16$$
$$B7 = (3 * B42 + 1 * B44)/4$$
$$B8 = (3 * B42 + 9 * B62 + 1 * B44 + 3 * B64)/16$$
$$B9 = (1 * B04 + 1 * B24)/2$$
$$B10 = (3 * B24 + 1 * B44)/4$$
$$B11 = (1 * B44)/1$$
$$B12 = (1 * B44 + 3 * B64)/4$$
$$B13 = (1 * B04 + 1 * B24 + 3 * B06 + 3 * B26)/8$$
$$B14 = (3 * B24 + 1 * B44 + 9 * B26 + 3 * B46)/16$$
$$B15 = (1 * B44 + 3 * B46)/4$$
$$B16 = (1 * B44 + 3 * B64 + 3 * B46 + 9 * B66)/16$$

FIG.10

R1,1	G2,1	R3,1	G4,1	R5,1	G6,1	R7,1	G8,1	R9,1	G10,1	R11,1	G12,1
G1,2	B2,2	G3,2	B4,2	G5,2	B6,2	G7,2	B8,2	G9,2	B10,2	G11,2	B12,2
R1,3	G2,3	R3,3	G4,3	R5,3	G6,3	R7,3	G8,3	R9,3	G10,3	R11,3	G12,3
G1,4	B2,4	G3,4	B4,4	G5,4	B6,4	G7,4	B8,4	G9,4	B10,4	G11,4	B12,4
R1,5	G2,5	R3,5	G4,5	R5,5	G6,5	R7,5	G8,5	R9,5	G10,5	R11,5	G12,5
G1,6	B2,6	G3,6	B4,6	G5,6	B6,6	G7,6	B8,6	G9,6	B10,6	G11,6	B12,6
R1,7	G2,7	R3,7	G4,7	R5,7	G6,7	R7,7	G8,7	R9,7	G10,7	R11,7	G12,7
G1,8	B2,8	G3,8	B4,8	G5,8	B6,8	G7,8	B8,8	G9,8	B10,8	G11,8	B12,8
R1,9	G2,9	R3,9	G4,9	R5,9	G6,9	R7,9	G8,9	R9,9	G10,9	R11,9	G12,9
G1,10	B2,10	G3,10	B4,10	G5,10	B6,10	G7,10	B8,10	G9,10	B10,10	G11,10	B12,10
R1,11	G2,11	R3,11	G4,11	R5,11	G6,11	R7,11	G8,11	R9,11	G10,11	R11,11	G12,11
G1,12	B2,12	G3,12	B4,12	G5,12	B6,12	G7,12	B8,12	G9,12	B10,12	G11,12	B12,12

$$R = (9 * R11 + 3 * R31 + 3 * R13 + 1 * R33)/16$$

$$G = (3 * G21 + 3 * G12 + 1 * G32 + 1 * G23)/8$$

$$B = (1 * B00 + 3 * B02 + 3 * B20 + 9 * B22)/16$$

FIG.11

R1, 1	G2, 1	R3, 1	G4, 1	R5, 1	G6, 1	R7, 1	G8, 1	R9, 1	G10, 1	R11, 1	G12, 1
G1, 2	B2, 2	G3, 2	B4, 2	G5, 2	B6, 2	G7, 2	B8, 2	G9, 2	B10, 2	G11, 2	B12, 2
R1, 3	G2, 3	R3, 3	G4, 3	R5, 3	G6, 3	R7, 3	G8, 3	R9, 3	G10, 3	R11, 3	G12, 3
G1, 4	B2, 4	G3, 4	B4, 4	G5, 4	B6, 4	G7, 4	B8, 4	G9, 4	B10, 4	G11, 4	B12, 4
R1, 5	G2, 5	R3, 5	G4, 5	R5, 5	G6, 5	R7, 5	G8, 5	R9, 5	G10, 5	R11, 5	G12, 5
G1, 6	B2, 6	G3, 6	B4, 6	G5, 6	B6, 6	G7, 6	B8, 6	G9, 6	B10, 6	G11, 6	B12, 6
R1, 7	G2, 7	R3, 7	G4, 7	R5, 7	G6, 7	R7, 7	G8, 7	R9, 7	G10, 7	R11, 7	G12, 7
G1, 8	B2, 8	G3, 8	B4, 8	G5, 8	B6, 8	G7, 8	B8, 8	G9, 8	B10, 8	G11, 8	B12, 8
R1, 9	G2, 9	R3, 9	G4, 9	R5, 9	G6, 9	R7, 9	G8, 9	R9, 9	G10, 9	R11, 9	G12, 9
G1, 10	B2, 10	G3, 10	B4, 10	G5, 10	B6, 10	G7, 10	B8, 10	G9, 10	B10, 10	G11, 10	B12, 10
R1, 11	G2, 11	R3, 11	G4, 11	R5, 11	G6, 11	R7, 11	G8, 11	R9, 11	G10, 11	R11, 11	G12, 11
G1, 12	B2, 12	G3, 12	B4, 12	G5, 12	B6, 12	G7, 12	B8, 12	G9, 12	B10, 12	G11, 12	B12, 12

$$R = (9 * R11 + 3 * R31 + 3 * R13 + 1 * R33)/16$$

$$G = (3 * G21 + 3 * G12 + 1 * G32 + 1 * G23)/8$$

$$B = (1 * B00 + 3 * B02 + 3 * B20 + 9 * B22)/16$$

FIG.12

R1,1	G2,1	R3,1	G4,1	R5,1	G6,1
G1,2	B2,2	G3,2	B4,2	G5,2	B6,2
R1,3	G2,3	R3,3 ①	G4,3 ②	R5,3	G6,3
G1,4	B2,4	G3,4 ③	B4,4 ④	G5,4	B6,4
R1,5	G2,5	R3,5	G4,5	R5,5	G6,5
G1,6	B2,6	G3,6	B4,6	G5,6	B6,6

$$R1 = R3,3$$
$$G1 = (G3,2 + G2,3 + G4,3 + G3,4)/4$$
$$B1 = (B2,2 + B4,2 + B2,4 + B4,4)/4$$

$$R2 = (R3,3 + R5,3)/2$$
$$G2 = (G3,2 + G5,2 + 4G4,3 + G3,4 + G5,4)/8$$
$$B2 = (B4,2 + B4,4)/2$$

$$R3 = (R3,3 + R3,5)/2$$
$$G3 = (G2,3 + G4,3 + 4G3,4 + G2,5 + G4,5)/8$$
$$B3 = (B2,4 + B4,4)/2$$

$$R4 = (R3,3 + R5,3 + R3,5 + R5,5)/4$$
$$G4 = (G4,3 + G3,4 + G5,4 + G4,5)/4$$
$$B4 = B4,4$$